AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Theory of Integral Equations								
Course Code	MTK540		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	This course aims to acquaint students with the basic knowledge of integral equations. Students will be familiar with classification of equations Volterra and Fredholm method of solutions. They may easily understand the features of topics used at the area of information other courses. They will be able to make applications related to physics, and other sciences.								
Course Content	Introduction to define and classify of integral equations, Volterra and Fredholm integral equations, integral equations systems								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	50
Assignment	1	20

Recommended or Required Reading	
1	Ram P. KANWAL (1971) Lineer integral denklemler (Linear Integral Equations), Academic Press, 1. New York and London.
2	Villiam Vernon LOVITT (1950) Lineer integral denklemler (Linear Integral Equations), Dower publications, New York
3	Yavuz AKSOY (1983) İntegral Denklemler (Integral Equations), Yıldız üniversitesi yayınları

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction, Classification of integral equations
3	Theoretical	Ayrılabilir Çekirdekli Integral Denklemler,
4	Theoretical	Method of successive approximation,
5	Theoretical	Volterra integral equations,
6	Theoretical	Linear system of Volterra integral equations,
7	Theoretical	Nonlinear Volterra integral equations of the second kind,
8	Theoretical	Fredholm integral equations with degenerate kernel
9	Intermediate Exam	MIDTERM EXAM
10	Theoretical	Fredholm theorem for integral equations,
11	Theoretical	Eigenvalues of the kernel of an integral equations
12	Theoretical	Integral equations with continuous kernel
13	Theoretical	Singular Volterra integral equations.
14	Theoretical	Singular Volterra integral equations.
15	Theoretical	Singular Volterra integral equations
16	Final Exam	FINAL EXAM

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	1	20	2	22
Midterm Examination	1	40	2	42
Final Examination	1	50	2	52
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8

**25 hour workload is accepted as 1 ECTS*

Learning Outcomes	
1	To be able to define, classify and find of Integral Equations
2	To be able to find relation between integral equations and differantial equations .To be able to solve Integral equations with separable kernels and to solve using general solution of them
3	To be able to solve successive approximation to integral equations and apply to volterra andFredholm
4	To be able to make applications related to physics, and other sciences.
5	To be able to use mathematical concepts in solving certain types of problems

Programme Outcomes *(Mathematics Master)*	
1	To be able to have an adequate theoretical and practical domain knowledge.
2	To be able to comprehend the interdisciplinary interaction associated with Mathematics.
3	To be able to use theoretical and practical domain knowledge gained in the field of Mathematics.
4	To be able to interpret knowledge from different disciplines integrating knowledge in the field of mathematics and produce new information.
5	To be able to define, analyse, model and to solve the problems by scientific methods in Mathematics.
6	To be able to conduct a math related specialistic study independently.
7	To be able to develop new strategic approaches to solve problems occurred in unforeseen and complex math-related applications by taking responsibility.
8	To be able to lead in situations that require solving problems related to the mathematics.
9	To be able to criticize his/her knowledge and skills acquired in the field mathematics.
10	To be able to transfer his/her ideas and suggestions for solutions to problems by supporting quantitative or qualitative data verbally and in writing.
11	To be able to communicate both orally and written in a foreign language.
12	To be able to use computer hardware and information technologies with software required by Mathematics.
13	To be able to contribute to the solution of the social, scientific, cultural and ethical problems related to the Mathematics, and being able to support the development of social, scientific, cultural and ethical values.
14	To be able to develop mathematics-related strategies, policies and operational plans, and to evaluate the results obtained within the framework of quality processes.
15	To be able to use his/her knowledge in the field of mathematics and practical problem-solving skills in interdisciplinary studies.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	3	4	2	3	3
P3	4		4	4	4
P4	2	2	2	3	3
P5	3	4	5	4	
P6	4	4	4	4	4
P7	4	4	4	4	4
P8	2	3	2	2	
P9	3	4	4	4	4
P10	4	4	4	4	4
P11	2	3	4	4	4
P12	2	4	3	3	
P13	2	3	3	4	4
P14	3	3	3	4	4